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<110> Sahin, Ugur  
Tureci, Oezlem  
Koslowski, Michael

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<140> US 10/537,002

<141> 2005-05-20

<150> PCT/EP2003/013091

<151> 2003-11-21

<150> DE 102 54 601.0

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 Page 8



19964US01\_ST25

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19964US01\_ST25  
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Val Phe Cys Cys Arg Met Gln Gln Trp Thr Glu Thr Arg Ile Tyr Met  
130 135 140

Thr Asn Leu Ala Val Ala Asp Leu Cys Leu Leu Cys Thr Leu Pro Phe  
145 150 155 160

Val Leu His Ser Leu Arg Asp Thr Ser Asp Thr Pro Leu Cys Gln Leu  
165 170 175

Ser Gln Gly Ile Tyr Leu Thr Asn Arg Tyr Met Ser Ile Ser Leu Val  
180 185 190

Thr Ala Ile Ala Val Asp Arg Tyr Val Ala Val Arg His Pro Leu Arg  
195 200 205

Ala Arg Gly Leu Arg Ser Pro Arg Gln Ala Ala Ala Val Cys Ala Val  
210 215 220

Leu Trp Val Leu Val Ile Gly Ser Leu Val Ala Arg Trp Leu Leu Gly  
225 230 235 240

Ile Gln Glu Gly Gly Phe Cys Phe Arg Ser Thr Arg His Asn Phe Asn  
245 250 255

Ser Met Ala Phe Pro Leu Leu Gly Phe Tyr Leu Pro Leu Ala Val Val  
260 265 270

Val Phe Cys Ser Leu Lys Val Val Thr Ala Leu Ala Gln Arg Pro Pro  
275 280 285

Thr Asp Val Gly Gln Ala Glu Ala Thr Arg Lys Ala Ala Arg Met Val  
290 295 300

Trp Ala Asn Leu Leu Val Phe Val Val Cys Phe Leu Pro Leu His Val  
305 310 315 320

Gly Leu Thr Val Arg Leu Ala Val Gly Trp Asn Ala Cys Ala Leu Leu  
325 330 335

19964US01\_ST25

Glu Thr Ile Arg Arg Ala Leu Tyr Ile Thr Ser Lys Leu Ser Asp Ala  
340 345 350

Asn Cys Cys Leu Asp Ala Ile Cys Tyr Tyr Tyr Met Ala Lys Glu Phe  
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Ser Gln Asp Ser Leu Cys Val Thr Leu Ala  
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Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala  
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Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile  
50 55 60

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala  
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Thr Phe Met Tyr Ser Asp Gly Leu Ile His Asn Ser Gly Asp Cys Arg  
85 90 95

Ser Ser Thr Cys Glu Gly Leu Asp Leu Leu Arg Lys Ile Ser Asn Ala  
100 105 110

Gln Arg Met Gly Cys Val Leu Ile Gly Pro Ser Cys Thr Tyr Ser Thr  
115 120 125

Phe Gln Met Tyr Leu Asp Thr Glu Leu Ser Tyr Pro Met Ile Ser Ala  
130 135 140

Gly Ser Phe Gly Leu Ser Cys Asp Tyr Lys Glu Thr Leu Thr Arg Leu  
145 150 155 160

## 19964US01\_ST25

Met Ser Pro Ala Arg Lys Leu Met Tyr Phe Leu Val Asn Phe Trp Lys  
 165 170 175  
 Thr Asn Asp Leu Pro Phe Lys Thr Tyr Ser Trp Ser Thr Ser Tyr Val  
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 Tyr Lys Asn Gly Thr Glu Thr Glu Asp Cys Phe Trp Tyr Leu Asn Ala  
 195 200 205  
 Leu Glu Ala Ser Val Ser Tyr Phe Ser His Glu Leu Gly Phe Lys Val  
 210 215 220  
 Val Leu Arg Gln Asp Lys Glu Phe Gln Asp Ile Leu Met Asp His Asn  
 225 230 235 240  
 Arg Lys Ser Asn Val Ile Ile Met Cys Gly Gly Pro Glu Phe Leu Tyr  
 245 250 255  
 Lys Leu Lys Gly Asp Arg Ala Val Ala Glu Asp Ile Val Ile Ile Leu  
 260 265 270  
 Val Asp Leu Phe Asn Asp Gln Tyr Leu Glu Asp Asn Val Thr Ala Pro  
 275 280 285  
 Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser Pro Gly Asn Ser  
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 Leu Leu Asn Ser Ser Phe Ser Arg Asn Leu Ser Pro Thr Lys Arg Asp  
 305 310 315 320  
 Phe Ala Leu Ala Tyr Leu Asn Gly Ile Leu Leu Phe Gly His Met Leu  
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 Lys Ile Phe Leu Glu Asn Gly Glu Asn Ile Thr Thr Pro Lys Phe Ala  
 340 345 350  
 His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr  
 355 360 365  
 Leu Asp Asp Trp Gly Asp Val Asp Ser Thr Met Val Leu Leu Tyr Thr  
 370 375 380  
 Ser Val Asp Thr Lys Lys Tyr Lys Val Leu Leu Thr Tyr Asp Thr His  
 385 390 395 400  
 Val Asn Lys Thr Tyr Pro Val Asp Met Ser Pro Thr Phe Thr Trp Lys  
 405 410 415

19964US01\_ST25

Asn Ser Lys Leu Pro Asn Asp Ile Thr Gly Arg Gly Pro Gln Ile Leu  
420 425 430

Met Ile Ala Val Phe Thr Leu Thr Gly Ala Val Val Leu Leu Leu Leu  
435 440 445

Val Ala Leu Leu Met Leu Arg Lys Tyr Arg Lys Asp Tyr Glu Leu Arg  
450 455 460

Gln Lys Lys Trp Ser His Ile Pro Pro Glu Asn Ile Phe Pro Leu Glu  
465 470 475 480

Thr Asn Glu Thr Asn His Val Ser Leu Lys Ile Asp Asp Asp Lys Arg  
485 490 495

Arg Asp Thr Ile Gln Arg Leu Arg Gln Cys Lys Tyr Asp Lys Lys Arg  
500 505 510

Val Ile Leu Lys Asp Leu Lys His Asn Asp Gly Asn Phe Thr Glu Lys  
515 520 525

Gln Lys Ile Glu Leu Asn Lys Leu Leu Gln Ile Asp Tyr Tyr Asn Leu  
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Thr Lys Phe Tyr Gly Thr Val Lys Leu Asp Thr Met Ile Phe Gly Val  
545 550 555 560

Ile Glu Tyr Cys Glu Arg Gly Ser Leu Arg Glu Val Leu Asn Asp Thr  
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Ile Ser Tyr Pro Asp Gly Thr Phe Met Asp Trp Glu Phe Lys Ile Ser  
580 585 590

Val Leu Tyr Asp Ile Ala Lys Gly Met Ser Tyr Leu His Ser Ser Lys  
595 600 605

Thr Glu Val His Gly Arg Leu Lys Ser Thr Asn Cys Val Val Asp Ser  
610 615 620

Arg Met Val Val Lys Ile Thr Asp Phe Gly Cys Asn Ser Ile Leu Pro  
625 630 635 640

Pro Lys Lys Asp Leu Trp Thr Ala Pro Glu His Leu Arg Gln Ala Asn  
645 650 655

Ile Ser Gln Lys Gly Asp Val Tyr Ser Tyr Gly Ile Ile Ala Gln Glu  
660 665 670

19964US01\_ST25

Ile Ile Leu Arg Lys Glu Thr Phe Tyr Thr Leu Ser Cys Arg Asp Arg  
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Asn Glu Lys Ile Phe Arg Val Glu Asn Ser Asn Gly Met Lys Pro Phe  
690 695 700

Arg Pro Asp Leu Phe Leu Glu Thr Ala Glu Glu Lys Glu Leu Glu Val  
705 710 715 720

Tyr Leu Leu Val Lys Asn Cys Trp Glu Glu Asp Pro Glu Lys Arg Pro  
725 730 735

Asp Phe Lys Lys Ile Glu Thr Thr Leu Ala Lys Ile Phe Gly Leu Phe  
740 745 750

His Asp Gln Lys Asn Glu Ser Tyr Met Asp Thr Leu Ile Arg Arg Leu  
755 760 765

Gln Leu Tyr Ser Arg Asn Leu Glu His Leu Val Glu Glu Arg Thr Gln  
770 775 780

Leu Tyr Lys Ala Glu Arg Asp Arg Ala Asp Arg Leu Asn Phe Met Leu  
785 790 795 800

Leu Pro Arg Leu Val Val Lys Ser Leu Lys Glu Lys Gly Phe Val Glu  
805 810 815

Pro Glu Leu Tyr Glu Glu Val Thr Ile Tyr Phe Ser Asp Ile Val Gly  
820 825 830

Phe Thr Thr Ile Cys Lys Tyr Ser Thr Pro Met Glu Val Val Asp Met  
835 840 845

Leu Asn Asp Ile Tyr Lys Ser Phe Asp His Ile Val Asp His His Asp  
850 855 860

Val Tyr Lys Val Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly  
865 870 875 880

Leu Pro Lys Arg Asn Gly Asn Arg His Ala Ile Asp Ile Ala Lys Met  
885 890 895

Ala Leu Glu Ile Leu Ser Phe Met Gly Thr Phe Glu Leu Glu His Leu  
900 905 910

Pro Gly Leu Pro Ile Trp Ile Arg Ile Gly Val His Ser Gly Pro Cys  
915 920 925 930 935 940 945 950

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920

925

Ala Ala Gly Val Val Gly Ile Lys Met Pro Arg Tyr Cys Leu Phe Gly  
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Asp Thr Val Asn Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Leu  
 945 950 955 960

Arg Ile His Val Ser Gly Ser Thr Ile Ala Ile Leu Lys Arg Thr Glu  
 965 970 975

Cys Gln Phe Leu Tyr Glu Val Arg Gly Glu Thr Tyr Leu Lys Gly Arg  
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Gly Asn Glu Thr Thr Tyr Trp Leu Thr Gly Met Lys Asp Gln Lys Phe  
 995 1000 1005

Asn Leu Pro Thr Pro Pro Thr Val Glu Asn Gln Gln Arg Leu Gln  
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Ala Glu Phe Ser Asp Met Ile Ala Asn Ser Leu Gln Lys Arg Gln  
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Ala Ala Gly Ile Arg Ser Gln Lys Pro Arg Arg Val Ala Ser Tyr  
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Glu Ser Thr Tyr Phe  
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 20 25 30

Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala  
 35 40 45

Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile  
 Page 15

50

55

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala  
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Thr Phe Met Tyr Ser Asp Gly Leu Ile His Asn Ser Gly Asp Cys Arg  
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20 25 30

Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala  
35 40 45

Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile  
50 55 60

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala  
65 70 75 80

Thr Phe Met Tyr Ser Asp Gly Leu Ile His Asn Ser Gly Asp Cys Arg  
85 90 95

Ser Ser Thr Cys Glu Gly Leu Asp Leu Leu Arg Lys Ile Ser Asn Ala  
100 105 110

Gln Arg Met Gly Cys Val Leu Ile Gly Pro Ser Cys Thr Tyr Ser Thr  
115 120 125

Phe Gln Met Tyr Leu Asp Thr Glu Leu Ser Tyr Pro Met Ile Ser Ala  
130 135 140

Gly Ser Phe Gly Leu Ser Cys Asp Tyr Lys Glu Thr Leu Thr Arg Leu  
145 150 155 160

Met Ser Pro Ala Arg Lys Leu Met Tyr Phe Leu Val Asn Phe Trp Lys  
Page 16



19964US01\_ST25  
170

165

175

Thr Asn Asp Leu Pro Phe Lys Thr Tyr Ser Trp Ser Thr Ser Tyr Val  
180 185 190

Tyr Lys Asn Gly Thr Glu Thr Glu Asp Cys Phe Trp Tyr Leu Asn Ala  
195 200 205

Leu Glu Ala Ser Val Ser Tyr Phe Ser His Glu Leu Gly Phe Lys Val  
210 215 220

Val Leu Arg Gln Asp Lys Glu Phe Gln Asp Ile Leu Met Asp His Asn  
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Thr Ile

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Gly Ser Tyr Glu Ile Ser Val Leu Met Met Gly Asn Ser Ala Phe Ala  
35 40 45

Glu Pro Leu Lys Asn Leu Glu Asp Ala Val Asn Glu Gly Leu Glu Ile  
50 55 60

Val Arg Gly Arg Leu Gln Asn Ala Gly Leu Asn Val Thr Val Asn Ala  
65 70 75 80

Thr Phe Met Tyr Ser Asp Gly Leu Ile His Asn Ser Gly Asp Cys Arg  
85 90 95

Ser Ser Thr Cys Glu Gly Leu Asp Leu Leu Arg Lys Ile Ser Asn Ala  
100 105 110

Gln Arg Met Gly Cys Val Leu Ile Gly Pro Ser Cys Thr Tyr Ser Thr  
Page 17

115

120

125

Phe Gln Met Tyr Leu Asp Thr Glu Leu Ser Tyr Pro Met Ile Ser Ala  
 130 135 140

Gly Ser Phe Gly Leu Ser Cys Asp Tyr Lys Glu Thr Leu Thr Arg Leu  
 145 150 155 160

Met Ser Pro Ala Arg Lys Leu Met Tyr Phe Leu Val Asn Phe Trp Lys  
 165 170 175

Thr Asn Asp Leu Pro Phe Lys Thr Tyr Ser Trp Ser Thr Ser Tyr Val  
 180 185 190

Tyr Lys Asn Gly Thr Glu Thr Glu Asp Cys Phe Trp Tyr Leu Asn Ala  
 195 200 205

Leu Glu Ala Ser Val Ser Tyr Phe Ser His Glu Leu Gly Phe Lys Val  
 210 215 220

Val Leu Arg Gln Asp Lys Glu Phe Gln Asp Ile Leu Met Asp His Asn  
 225 230 235 240

Arg Lys Ser Asn Val Ile Ile Met Cys Gly Gly Pro Glu Phe Leu Tyr  
 245 250 255

Lys Leu Lys Gly Asp Arg Ala Val Ala Glu Asp Ile Val Ile Ile Leu  
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Val Asp Leu Phe Asn Asp Gln Tyr Leu Glu Asp Asn Val Thr Ala Pro  
 275 280 285

Asp Tyr Met Lys Asn Val Leu Val Leu Thr Leu Ser Pro Gly Asn Ser  
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Leu Leu Asn Ser Ser Phe Ser Arg Asn Leu Ser Pro Thr Lys Arg Asp  
 305 310 315 320

Phe Ala Leu Ala Tyr Leu Asn Gly Ile Leu Leu Phe Gly His Met Leu  
 325 330 335

Lys Ile Phe Leu Glu Asn Gly Glu Asn Ile Thr Thr Pro Lys Phe Ala  
 340 345 350

His Ala Phe Arg Asn Leu Thr Phe Glu Gly Tyr Asp Gly Pro Val Thr  
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## 19964US01\_ST25

Leu Asp Asp Trp Gly Asp Val Asp Ser Thr Met Val Leu Leu Tyr Thr  
 370 375 380  
 Ser Val Asp Thr Lys Lys Tyr Lys Val Leu Leu Thr Tyr Asp Thr His  
 385 390 395 400  
 Val Asn Lys Thr Tyr Pro Val Asp Met Ser Pro Thr Phe Thr Trp Lys  
 405 410 415  
 Asn Ser Lys Leu Pro Asn Asp Ile Thr Gly Arg Gly Pro Gln Ile Leu  
 420 425 430  
 Met Ile Ala Val Phe Thr Leu Thr Gly Ala Val Val Leu Leu Leu Leu  
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 Val Ala Leu Leu Met Leu Arg Lys Tyr Arg Lys Asp Tyr Glu Leu Arg  
 450 455 460  
 Gln Lys Lys Trp Ser His Ile Pro Pro Glu Asn Ile Phe Pro Leu Glu  
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 Thr Asn Glu Thr Asn His Val Ser Leu Lys Ile Asp Asp Asp Lys Arg  
 485 490 495  
 Arg Asp Thr Ile Gln Arg Leu Arg Gln Cys Lys Tyr Asp Lys Lys Arg  
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 Val Ile Leu Lys Asp Leu Lys His Asn Asp Gly Asn Phe Thr Glu Lys  
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 Gln Lys Ile Glu Leu Asn Lys Ile Asp Tyr Tyr Asn Leu Thr Lys Phe  
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 Tyr Gly Thr Val Lys Leu Asp Thr Met Ile Phe Gly Val Ile Glu Tyr  
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 Cys Glu Arg Gly Ser Leu Arg Glu Val Leu Asn Asp Thr Ile Ser Tyr  
 565 570 575  
 Pro Asp Gly Thr Phe Met Asp Trp Glu Phe Lys Ile Ser Val Leu Tyr  
 580 585 590  
 Asp Ile Ala Lys Gly Met Ser Tyr Leu His Ser Ser Lys Thr Glu Val  
 595 600 605  
 His Gly Arg Leu Lys Ser Thr Asn Cys Val Val Asp Ser Arg Met Val  
 610 615 620

19964US01\_ST25

Val Lys Ile Thr Asp Phe Gly Cys Asn Ser Ile Leu Pro Pro Lys Lys  
625 630 635 640

Asp Leu Trp Thr Ala Pro Glu His Leu Arg Gln Ala Asn Ile Ser Gln  
645 650 655

Lys Gly Asp Val Tyr Ser Tyr Gly Ile Ile Ala Gln Glu Ile Ile Leu  
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Arg Lys Glu Thr Phe Tyr Thr Leu Ser Cys Arg Asp Arg Asn Glu Lys  
675 680 685

Ile Phe Arg Val Glu Asn Ser Asn Gly Met Lys Pro Phe Arg Pro Asp  
690 695 700

Leu Phe Leu Glu Thr Ala Glu Glu Lys Glu Leu Glu Val Tyr Leu Leu  
705 710 715 720

Val Lys Asn Cys Trp Glu Glu Asp Pro Glu Lys Arg Pro Asp Phe Lys  
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Lys Ile Glu Thr Thr Leu Ala Lys Ile Phe Gly Leu Phe His Asp Gln  
740 745 750

Lys Asn Glu Ser Tyr Met Asp Thr Leu Ile Arg Arg Leu Gln Leu Tyr  
755 760 765

Ser Arg Asn Leu Glu His Leu Val Glu Glu Arg Thr Gln Leu Tyr Lys  
770 775 780

Ala Glu Arg Asp Arg Ala Asp Arg Leu Asn Phe Met Leu Leu Pro Arg  
785 790 795 800

Leu Val Val Lys Ser Leu Lys Glu Lys Gly Phe Val Glu Pro Glu Leu  
805 810 815

Tyr Glu Glu Val Thr Ile Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr  
820 825 830

Ile Cys Lys Tyr Ser Thr Pro Met Glu Val Val Asp Met Leu Asn Asp  
835 840 845

Ile Tyr Lys Ser Phe Asp His Ile Val Asp His His Asp Val Tyr Lys  
850 855 860

Val Glu Thr Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Lys  
865 870 875 880

19964US01\_ST25

Arg Asn Gly Asn Arg His Ala Ile Asp Ile Ala Lys Met Ala Leu Glu  
885 890 895

Ile Leu Ser Phe Met Gly Thr Phe Glu Leu Glu His Leu Pro Gly Leu  
900 905 910

Pro Ile Trp Ile Arg Ile Gly Val His Ser Gly Pro Cys Ala Ala Gly  
915 920 925

Val Val Gly Ile Lys Met Pro Arg Tyr Cys Leu Phe Gly Asp Thr Val  
930 935 940

Asn Thr Ala Ser Arg Met Glu Ser Thr Gly Leu Pro Leu Arg Ile His  
945 950 955 960

Val Ser Gly Ser Thr Ile Ala Ile Leu Lys Arg Thr Glu Cys Gln Phe  
965 970 975

Leu Tyr Glu Val Arg Gly Glu Thr Tyr Leu Lys Gly Arg Gly Asn Glu  
980 985 990

Thr Thr Tyr Trp Leu Thr Gly Met Lys Asp Gln Lys Phe Asn Leu Pro  
995 1000 1005

Thr Pro Pro Thr Val Glu Asn Gln Gln Arg Leu Gln Ala Glu Phe  
1010 1015 1020

Ser Asp Met Ile Ala Asn Ser Leu Gln Lys Arg Gln Ala Ala Gly  
1025 1030 1035

Ile Arg Ser Gln Lys Pro Arg Arg Val Ala Ser Tyr Lys Lys Gly  
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Tyr Phe  
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19964US01\_ST25

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20 25 30

Lys Leu Ala Pro Leu Pro Leu Asp Asn Ile Leu Pro Phe Met Asp Pro  
35 40 45

Leu Lys Leu Leu Leu Lys Thr Leu Gly Ile Ser Val Glu His Leu Val  
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35 40 45

Leu Trp Arg Ser Cys Val Arg Glu Ser Ser Gly Phe Thr Glu Cys Arg  
50 55 60

Gly Tyr Phe Thr Leu Leu Gly Leu Pro Ala Met Leu Gln Ala Val Arg  
65 70 75 80

Ala Leu Met Ile Val Gly Ile Val Leu Gly Ala Ile Gly Leu Leu Val  
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Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met Glu Asp Ser  
100 105 110

Ala Lys Ala Asn Met Thr Leu Thr Ser Gly Ile Met Phe Ile Val Ser  
115 120 125

Gly Leu Cys Ala Ile Ala Gly Val Ser Val Phe Ala Asn Met Leu Val  
130 135 140

19964US01\_ST25

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly Met Gly Gly  
145 150 155 160

Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly Ala Ala Leu Phe  
165 170 175

Val Gly Trp Val Ala Gly Gly Leu Thr Leu Ile Gly Gly Val Met Met  
180 185 190

Cys Ile Ala Cys Arg Gly Leu Ala Pro Glu Glu Thr Asn Tyr Lys Ala  
195 200 205

Val Ser Tyr His Ala Ser Gly His Ser Val Ala Tyr Lys Pro Gly Gly  
210 215 220

Phe Lys Ala Ser Thr Gly Phe Gly Ser Asn Thr Lys Asn Lys Lys Ile  
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Lys His Asp Tyr Val  
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19964US01\_ST25

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<210> 33

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19964US01\_ST25

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 caaggaagca gaatgtgcct acacactctt tgtggtcgcc acattttggc tcacagaagc 180  
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19964US01\_ST25

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			20					25					30		

Lys	Glu	Ala	Glu	Cys	Ala	Tyr	Thr	Leu	Phe	Val	Val	Ala	Thr	Phe	Trp
		35					40					45			

Leu	Thr	Glu	Ala	Leu	Pro	Leu	Ser	Val	Thr	Ala	Leu	Leu	Pro	Ser	Leu
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50

55

Met Leu Pro Met Phe Gly Ile Met Pro Ser Lys Lys Val Ala Ser Ala  
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Tyr Phe Lys Asp Phe His Leu Leu Leu Ile Gly Val Ile Cys Leu Ala  
85 90 95

Thr Ser Ile Glu Lys Trp Asn Leu His Lys Arg Ile Ala Leu Lys Met  
100 105 110

Val Met Met Val Gly Val Asn Pro Ala Trp Leu Thr Leu Gly Phe Met  
115 120 125

Ser Ser Thr Ala Phe Leu Ser Met Trp Leu Ser Asn Thr Ser Thr Ala  
130 135 140

Ala Met Val Met Pro Ile Ala Glu Ala Val Val Gln Gln Ile Ile Asn  
145 150 155 160

Ala Glu Ala Glu Val Glu Ala Thr Gln Met Thr Tyr Phe Asn Gly Ser  
165 170 175

Thr Asn His Gly Leu Glu Ile Asp Glu Ser Val Asn Gly His Glu Ile  
180 185 190

Asn Glu Arg Lys Glu Lys Thr Lys Pro Val Pro Gly Tyr Asn Asn Asp  
195 200 205

Thr Gly Lys Ile Ser Ser Lys Val Glu Leu Glu Lys Asn Ser Gly Met  
210 215 220

Arg Thr Lys Tyr Arg Thr Lys Lys Gly His Val Thr Arg Lys Leu Thr  
225 230 235 240

Cys Leu Cys Ile Ala Tyr Ser Ser Thr Ile Gly Gly Leu Thr Thr Ile  
245 250 255

Thr Gly Thr Ser Thr Asn Leu Ile Phe Ala Glu Tyr Phe Asn Thr Arg  
260 265 270

Tyr Pro Asp Cys Arg Cys Leu Asn Phe Gly Ser Trp Phe Thr Phe Ser  
275 280 285

Phe Pro Ala Ala Leu Ile Ile Leu Leu Leu Ser Trp Ile Trp Leu Gln  
290 295 300



## 19964US01\_ST25

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 325 330 335

Tyr Gln Lys Leu Gly Pro Ile Arg Tyr Gln Glu Ile Val Thr Leu Val  
 340 345 350

Leu Phe Ile Ile Met Ala Leu Leu Trp Phe Ser Arg Asp Pro Gly Phe  
 355 360 365

Val Pro Gly Trp Ser Ala Leu Phe Ser Glu Tyr Pro Gly Phe Ala Thr  
 370 375 380

Asp Ser Thr Val Ala Leu Leu Ile Gly Leu Leu Phe Phe Leu Ile Pro  
 385 390 395 400

Ala Lys Thr Leu Thr Lys Thr Thr Pro Thr Gly Glu Ile Val Ala Phe  
 405 410 415

Asp Tyr Ser Pro Leu Ile Thr Trp Lys Glu Phe Gln Ser Phe Met Pro  
 420 425 430

Trp Asp Ile Ala Ile Leu Val Gly Gly Gly Phe Ala Leu Ala Asp Gly  
 435 440 445

Cys Glu Glu Ser Gly Leu Ser Lys Trp Ile Gly Asn Lys Leu Ser Pro  
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Leu Gly Ser Leu Pro Ala Trp Leu Ile Ile Leu Ile Ser Ser Leu Met  
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Val Thr Ser Leu Thr Glu Val Ala Ser Asn Pro Ala Thr Ile Thr Leu  
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Phe Leu Pro Ile Leu Ser Pro Leu Ala Glu Ala Ile His Val Asn Pro  
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Leu Tyr Ile Leu Ile Pro Ser Thr Leu Cys Thr Ser Phe Ala Phe Leu  
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Leu Pro Val Ala Asn Pro Pro Asn Ala Ile Val Phe Ser Tyr Gly His  
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Leu Lys Val Ile Asp Met Val Lys Ala Gly Leu Gly Val Asn Ile Val  
 545 550 555 560

19964US01\_ST25

Gly Val Ala Val Val Met Leu Gly Ile Cys Thr Trp Ile Val Pro Met  
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Phe Asp Leu Tyr Thr Tyr Pro Ser Trp Ala Pro Ala Met Ser Asn Glu  
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Thr Met Pro  
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His Thr Lys Glu Ala Glu Cys Ala Tyr Thr Leu Phe Val Val Ala Thr  
35 40 45

Phe Trp Leu Thr Glu Ala Leu Pro Leu Ser Val Thr Ala Leu Leu Pro  
50 55 60

Ser Leu Met Leu Pro Met Phe Gly Ile Met Pro Ser Lys Lys Val Ala  
65 70 75 80

Ser Ala Tyr Phe Lys Asp Phe His Leu Leu Leu Ile Gly Val Ile Cys  
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Leu Ala Thr Ser Ile Glu Lys Trp Asn Leu His Lys Arg Ile Ala Leu  
100 105 110

Lys Met Val Met Met Val Gly Val Asn Pro Ala Trp Leu Thr Leu Gly  
115 120 125

Phe Met Ser Ser Thr Ala Phe Leu Ser Met Trp Leu Ser Asn Thr Ser  
130 135 140

Thr Ala Ala Met Val Met Pro Ile Ala Glu Ala Val Val Gln Gln Ile  
145 150 155 160

Ile Asn Ala Glu Ala Glu Val Glu Ala Thr Gln Met Thr Tyr Phe Asn  
165 170 175

19964US01\_ST25

Gly Ser Thr Asn His Gly Leu Glu Ile Asp Glu Ser Val Asn Gly His  
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35 40 45

Lys Val Glu Leu Glu Lys His Trp Lys Leu Ala Val Gln Asp Gly Ser  
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Pro Ser Pro Ser Val His Ser Val Ser Gln Leu Ala Ala Gln Gly Lys  
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Glu Lys Val Glu Gly Ile Cys Thr  
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Arg Lys Glu Lys Thr Lys Pro Val Pro Gly Tyr Asn Asn Asp Thr Gly  
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Lys Ile Ser Ser Lys Val Glu Leu Glu Lys Asn Ser Gly Met Arg Thr  
35 40 45

19964US01\_ST25

Lys Tyr Arg Thr Lys Lys Gly His Val Thr Arg Lys Leu Thr Cys Leu  
50 55 60

Cys Ile Ala Tyr Ser Ser Thr Ile Gly Gly Leu Thr Thr Ile Thr Gly  
65 70 75 80

Thr Ser Thr Asn Leu Ile Phe Ala Glu Tyr Phe Asn Thr Phe His Pro  
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19964US01\_ST25

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19964US01\_ST25

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gaaataatcc agaatttcaa tgcttttgaa tgttcttagt gatactgacc tgtgataata	4680
taattcccag ggaggactgg gaaccttata tcttgagata ttgcataat ttatttaatt	4740
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aaaaaaaaaa aaaaa	4815

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tcgatttcat ctttgagag gccaatggg cttagcctca gtctctgtct ctaaatattc	180
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tatttctttt tttaaatata actttctact ctgatgagag aatgtggttt taatctctct	300
ctcacatttt gatgatttag acagactccc cctcttcctc ctagtcaata aaccattga	360
tgatctattt ccagcttat ccccaagaaa acttttgaaa ggaaagagta gacccaaaga	420
tgttattttc tgctgtttga attttgctc cccaccccca acttggttag taataaacac	480
ttactgaaga agaagcaata agagaaagat atttgtaatc tctccagccc atgatctcg	540
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caaacctttc tactgctgtt gacatcttct tattacagca acaccattct aggagtttcc	660
tgagctctcc actggagtc tctttctgtc gcgggtcaga aattgtccct agatgaatga	720
gaaaattatt ttttttaatt taagtcctaa atatagttaa aataaataat gttttagtaa	780
aatgatacac tatctctgtg aaatagctc acccctacat gtggatagaa ggaaatgaaa	840
aaataattgc ttgacattg tctatatggg actttgtaaa gtcattgctta agtacaaatt	900
ccatgaaaag ctcactgatc ctaattcttt ccctttgagg tctctatggc tctgattgta	960
catgatagta agtgaagcc atgtaaaaag taaataatgt ctgggcacag tggctcacgc	1020
ctgtaatcct agcactttgg gaggctgagg aggaaggatc acttgagccc agaagttcga	1080
gactagcctg ggcaacatgg agaagccctg tctctacaaa atacagagag aaaaaatcag	1140
ccagtcattg tggcatacac ctgtagtccc agcattccgg gaggctgagg tgggaggatc	1200
acttgagccc agggagggtg gggctgcagt gagccatgat cacaccactg cactccagcc	1260

19964US01\_ST25

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cctaggaagt aggttaaaac taattcttta aaaaaaaaaa aaagttgagc ctgaattaaa	1380
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cagtagcact ttcctggcac tgtgggctgg tttgttttgt tttgctttgt ttagagacgg	1500
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tcccaagtag ctggaattac aggtgtgctc catcacaact agctgggtgg cagttttgtt	1620
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ggcaaaactg aaagctcttt gcaaccacac accttccctg agcttacatc actgcccttt	1740
tgagcagaaa gtctaaattc cttccaagac agtagaattc catcccagta ccaaagccag	1800
ataggccccc taggaaactg aggtgaagagc agtctctaaa aactaccac agcagcattg	1860
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cagagcagtg agctcagagg cccttctcac tgagacagca acatttaaac caaaccagag	2100
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ctctctggat ttgagtgaa gagcatccat ttgagtgaa ggccacaggg cacaatgagc	2280
tctcccttct accaccagaa agtccttggg caggctcag gtagtgcggt gtggctcagc	2340
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ttagattgtg ctttgtaatt ttgttggtgt tgctctatct tattgtatat gcattgagta	2460
ttaacctgaa tgttttgtta cttaaattt aaaaacactg ttatcctaca aaaaaacct	2520
caaaggctga aaataaagaa ggaagatgga gacaccctct gggggctctc tc	2572

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tgacatccag gtgtccgatg atgacaaggc gggggccacc ttgtcttctt caggcatctt	180
tctgggactg gtggggatca cattcactgt catgggctgg atcaaatacc aaggtgtctc	240
ccactttgaa tggaccacag tccttggggc cgtcctgctg tcagttgggg tgacattcat	300
cctgattgct gtgtgcaagt tcaaaatgct ctctgccag ttgtgcaaag aaagtgagga	360

19964US01\_ST25

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tccagagcct atggggataa ataccagcta cctgcagtct gtggtgagcc cctgcggcct	540
cataacctct ggaggggag cagccgccat gtcaagtcct cctcaatact acaccatcta	600
ccctcaagat aactctgcat ttgtggttga tgagggtgc ctttctttca cggacggtgg	660
aaatcacagg cccaatcctg atgttgacca gctagaagag acacagctgg aagaggaggc	720
ctgtgcctgc ttctctcctc ccccttatga agaaatatac tctctccctc gctagaggct	780
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acagagatca ttcaaggggg gaaaggggaa gtgggaggtg caatttctca gattggtaaa	960
aattaggctg ggctggggaa attctcctcc ggaacagttt caaatccctc cgggtaagaa	1020
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tata	1324

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gccgccgagc agaggaatca agacctgctc attctttcct cgggggatcc atccagcaat	180
gacatcatct catgctgcca caaggacccc aagtctgggc tgctggggac cagccacgt	240
ccccactgct cattccttca tcctagagac attctgactc tcctccgact gcgctgtgca	300
caggcgtgac aagctctttt acatctcagt ctgcacaact tcaggcactt agcagattga	360
tatgcatcca acaaatttg attgaatatc tgctaaatac ccagtaatgt ttcattgagt	420
attgggtgaa taaaggaatg ctggttcctt ctggccatat taactcctgc acaatactaa	480
gaaaaataaa ttgcactagc tgtggaataa tgtgaatccc aatgtcatct attgaaatat	540
tacctgacta ttaagaggta tttatttttg tatcttttct agcaaagtaa ataaaaattct	600
taatacagca tatccccctta ttcacggggg gtatgttcca agacccccgg tggatgcctg	660



aaactatgga taataccaga tcc

683

<210> 60  
 <211> 914  
 <212> PRT  
 <213> Homo Sapiens

&lt;400&gt; 60

Met Gly Pro Phe Lys Ser Ser Val Phe Ile Leu Ile Leu His Leu Leu  
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Glu Gly Ala Leu Ser Asn Ser Leu Ile Gln Leu Asn Asn Asn Gly Tyr  
 20 25 30

Glu Gly Ile Val Val Ala Ile Asp Pro Asn Val Pro Glu Asp Glu Thr  
 35 40 45

Leu Ile Gln Gln Ile Lys Asp Met Val Thr Gln Ala Ser Leu Tyr Leu  
 50 55 60

Phe Glu Ala Thr Gly Lys Arg Phe Tyr Phe Lys Asn Val Ala Ile Leu  
 65 70 75 80

Ile Pro Glu Thr Trp Lys Thr Lys Ala Asp Tyr Val Arg Pro Lys Leu  
 85 90 95

Glu Thr Tyr Lys Asn Ala Asp Val Leu Val Ala Glu Ser Thr Pro Pro  
 100 105 110

Gly Asn Asp Glu Pro Tyr Thr Glu Gln Met Gly Asn Cys Gly Glu Lys  
 115 120 125

Gly Glu Arg Ile His Leu Thr Pro Asp Phe Ile Ala Gly Lys Lys Leu  
 130 135 140

Ala Glu Tyr Gly Pro Gln Gly Lys Ala Phe Val His Glu Trp Ala His  
 145 150 155 160

Leu Arg Trp Gly Val Phe Asp Glu Tyr Asn Asn Asp Glu Lys Phe Tyr  
 165 170 175

Leu Ser Asn Gly Arg Ile Gln Ala Val Arg Cys Ser Ala Gly Ile Thr  
 180 185 190

Gly Thr Asn Val Val Lys Lys Cys Gln Gly Gly Ser Cys Tyr Thr Lys  
 195 200 205

## 19964US01\_ST25

Arg Cys Thr Phe Asn Lys Val Thr Gly Leu Tyr Glu Lys Gly Cys Glu  
 210 215 220  
 Phe Val Leu Gln Ser Arg Gln Thr Glu Lys Ala Ser Ile Met Phe Ala  
 225 230 235 240  
 Gln His Val Asp Ser Ile Val Glu Phe Cys Thr Glu Gln Asn His Asn  
 245 250 255  
 Lys Glu Ala Pro Asn Lys Gln Asn Gln Lys Cys Asn Leu Arg Ser Thr  
 260 265 270  
 Trp Glu Val Ile Arg Asp Ser Glu Asp Phe Lys Lys Thr Thr Pro Met  
 275 280 285  
 Thr Thr Gln Pro Pro Asn Pro Thr Phe Ser Leu Leu Gln Ile Gly Gln  
 290 295 300  
 Arg Ile Val Cys Leu Val Leu Asp Lys Ser Gly Ser Met Ala Thr Gly  
 305 310 315 320  
 Asn Arg Leu Asn Arg Leu Asn Gln Ala Gly Gln Leu Phe Leu Leu Gln  
 325 330 335  
 Thr Val Glu Leu Gly Ser Trp Val Gly Met Val Thr Phe Asp Ser Ala  
 340 345 350  
 Ala His Val Gln Ser Glu Leu Ile Gln Ile Asn Ser Gly Ser Asp Arg  
 355 360 365  
 Asp Thr Leu Ala Lys Arg Leu Pro Ala Ala Ala Ser Gly Gly Thr Ser  
 370 375 380  
 Ile Cys Ser Gly Leu Arg Ser Ala Phe Thr Val Ile Arg Lys Lys Tyr  
 385 390 395 400  
 Pro Thr Asp Gly Ser Glu Ile Val Leu Leu Thr Asp Gly Glu Asp Asn  
 405 410 415  
 Thr Ile Ser Gly Cys Phe Asn Glu Val Lys Gln Ser Gly Ala Ile Ile  
 420 425 430  
 His Thr Val Ala Leu Gly Pro Ser Ala Ala Gln Glu Leu Glu Glu Leu  
 435 440 445  
 Ser Lys Met Thr Gly Gly Leu Gln Thr Tyr Ala Ser Asp Gln Val Gln  
 450 455 460

19964US01\_ST25

Asn Asn Gly Leu Ile Asp Ala Phe Gly Ala Leu Ser Ser Gly Asn Gly  
 465 470 475 480  
 Ala Val Ser Gln Arg Ser Ile Gln Leu Glu Ser Lys Gly Leu Thr Leu  
 485 490 495  
 Gln Asn Ser Gln Trp Met Asn Gly Thr Val Ile Val Asp Ser Thr Val  
 500 505 510  
 Gly Lys Asp Thr Leu Phe Leu Ile Thr Trp Thr Thr Gln Pro Pro Gln  
 515 520 525  
 Ile Leu Leu Trp Asp Pro Ser Gly Gln Lys Gln Gly Gly Phe Val Val  
 530 535 540  
 Asp Lys Asn Thr Lys Met Ala Tyr Leu Gln Ile Pro Gly Ile Ala Lys  
 545 550 555 560  
 Val Gly Thr Trp Lys Tyr Ser Leu Gln Ala Ser Ser Gln Thr Leu Thr  
 565 570 575  
 Leu Thr Val Thr Ser Arg Ala Ser Asn Ala Thr Leu Pro Pro Ile Thr  
 580 585 590  
 Val Thr Ser Lys Thr Asn Lys Asp Thr Ser Lys Phe Pro Ser Pro Leu  
 595 600 605  
 Val Val Tyr Ala Asn Ile Arg Gln Gly Ala Ser Pro Ile Leu Arg Ala  
 610 615 620  
 Ser Val Thr Ala Leu Ile Glu Ser Val Asn Gly Lys Thr Val Thr Leu  
 625 630 635 640  
 Glu Leu Leu Asp Asn Gly Ala Gly Ala Asp Ala Thr Lys Asp Asp Gly  
 645 650 655  
 Val Tyr Ser Arg Tyr Phe Thr Thr Tyr Asp Thr Asn Gly Arg Tyr Ser  
 660 665 670  
 Val Lys Val Arg Ala Leu Gly Gly Val Asn Ala Ala Arg Arg Arg Val  
 675 680 685  
 Ile Pro Gln Gln Ser Gly Ala Leu Tyr Ile Pro Gly Trp Ile Glu Asn  
 690 695 700  
 Asp Glu Ile Gln Trp Asn Pro Pro Arg Pro Glu Ile Asn Lys Asp Asp  
 705 710 715 720

19964US01\_ST25

Val Gln His Lys Gln Val Cys Phe Ser Arg Thr Ser Ser Gly Gly Ser  
725 730 735

Phe Val Ala Ser Asp Val Pro Asn Ala Pro Ile Pro Asp Leu Phe Pro  
740 745 750

Pro Gly Gln Ile Thr Asp Leu Lys Ala Glu Ile His Gly Gly Ser Leu  
755 760 765

Ile Asn Leu Thr Trp Thr Ala Pro Gly Asp Asp Tyr Asp His Gly Thr  
770 775 780

Ala His Lys Tyr Ile Ile Arg Ile Ser Thr Ser Ile Leu Asp Leu Arg  
785 790 795 800

Asp Lys Phe Asn Glu Ser Leu Gln Val Asn Thr Thr Ala Leu Ile Pro  
805 810 815

Lys Glu Ala Asn Ser Glu Glu Val Phe Leu Phe Lys Pro Glu Asn Ile  
820 825 830

Thr Phe Glu Asn Gly Thr Asp Leu Phe Ile Ala Ile Gln Ala Val Asp  
835 840 845

Lys Val Asp Leu Lys Ser Glu Ile Ser Asn Ile Ala Arg Val Ser Leu  
850 855 860

Phe Ile Pro Pro Gln Thr Pro Pro Glu Thr Pro Ser Pro Asp Glu Thr  
865 870 875 880

Ser Ala Pro Cys Pro Asn Ile His Ile Asn Ser Thr Ile Pro Gly Ile  
885 890 895

His Ile Leu Lys Ile Met Trp Lys Trp Ile Gly Glu Leu Gln Leu Ser  
900 905 910

Ile Ala

<210> 61  
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<212> PRT  
<213> Homo Sapiens

<400> 61

Met Lys Lys Glu Gly Arg Lys Arg Trp Lys Arg Lys Glu Asp Lys Lys  
1 5 10 15

19964US01\_ST25

Arg Val Val Val Ser Asn Leu Leu Phe Glu Gly Trp Ser His Lys Glu  
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Asn Pro Asn Arg His His Arg Gly Asn Gln Ile Lys Thr Ser Lys Tyr  
35 40 45

Thr Val Leu Ser Phe Val Pro Lys Asn Ile Phe Glu Gln Leu His Arg  
50 55 60

Phe Ala Asn Leu Tyr Phe Val Gly Ile Ala Val Leu Asn Phe Ile Pro  
65 70 75 80

Val Val Asn Ala Phe Gln Pro Glu Val Ser Met Ile Pro Ile Cys Val  
85 90 95

Ile Leu Ala Val Thr Ala Ile Lys Asp Ala Trp Glu Asp Leu Arg Arg  
100 105 110

Tyr Lys Ser Asp Lys Val Ile Asn Asn Arg Glu Cys Leu Ile Tyr Ser  
115 120 125

Arg Lys Glu Gln Thr Tyr Val Gln Lys Cys Trp Lys Asp Val Arg Val  
130 135 140

Gly Asp Phe Ile Gln Met Lys Cys Asn Glu Ile Val Pro Ala Asp Ile  
145 150 155 160

Leu Leu Leu Phe Ser Ser Asp Pro Asn Gly Ile Cys His Leu Glu Thr  
165 170 175

Ala Ser Leu Asp Gly Glu Thr Asn Leu Lys Gln Arg Arg Val Val Lys  
180 185 190

Gly Phe Ser Gln Gln Glu Val Gln Phe Glu Pro Glu Leu Phe His Asn  
195 200 205

Thr Ile Val Cys Glu Lys Pro Asn Asn His Leu Asn Lys Phe Lys Gly  
210 215 220

Tyr Met Glu His Pro Asp Gln Thr Arg Thr Gly Phe Gly Cys Glu Ser  
225 230 235 240

Leu Leu Leu Arg Gly Cys Thr Ile Arg Asn Thr Glu Met Ala Val Gly  
245 250 255

Ile Val Ile Tyr Ala Gly His Glu Thr Lys Ala Met Leu Asn Asn Ser  
Page 53

260

265

270

Gly Pro Arg Tyr Lys Arg Ser Lys Ile Glu Arg Arg Met Asn Ile Asp  
           275                          280                          285

Ile Phe Phe Cys Ile Gly Ile Leu Ile Leu Met Cys Leu Ile Gly Ala  
           290                          295                          300

Val Gly His Ser Ile Trp Asn Gly Thr Phe Glu Glu His Pro Pro Phe  
   305                          310                          315                          320

Asp Val Pro Asp Ala Asn Gly Ser Phe Leu Pro Ser Ala Leu Gly Gly  
                           325                          330                          335

Phe Tyr Met Phe Leu Thr Met Ile Ile Leu Leu Gln Val Leu Ile Pro  
                           340                          345                          350

Ile Ser Leu Tyr Val Ser Ile Glu Leu Val Lys Leu Gly Gln Val Phe  
           355                          360                          365

Phe Leu Ser Asn Asp Leu Asp Leu Tyr Asp Glu Glu Thr Asp Leu Ser  
   370                          375                          380

Ile Gln Cys Arg Ala Leu Asn Ile Ala Glu Asp Leu Gly Gln Ile Gln  
   385                          390                          395                          400

Tyr Ile Phe Ser Asp Lys Thr Gly Thr Leu Thr Glu Asn Lys Met Val  
                           405                          410                          415

Phe Arg Arg Cys Thr Ile Met Gly Ser Glu Tyr Ser His Gln Glu Asn  
                           420                          425                          430

Gly Ile Glu Ala Pro Lys Gly Ser Ile Pro Leu Ser Lys Arg Lys Tyr  
           435                          440                          445

Pro Ala Leu Leu Arg Asn Glu Glu Ile Lys Asp Ile Leu Leu Ala Leu  
   450                          455                          460

Leu Glu Ala Val Trp His Phe His Lys Leu Leu Pro Val Ser Leu Trp  
   465                          470                          475                          480

Ser Ser Leu Ser Gln Ile Arg Ala Val Pro Ile Thr Cys Lys Leu Ser  
                           485                          490                          495

Phe Val Tyr Lys Gly  
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19964US01\_ST25

<210> 62  
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 <213> Homo Sapiens

<400> 62

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 1 5 10 15

Ser Tyr Pro Trp Cys Arg Ser Tyr Gln Pro Phe Pro Arg Lys Arg Ala  
 20 25 30

Trp Pro Pro Ser Arg Val Trp Leu Gly Ala Cys Cys Ala Ser Leu Ala  
 35 40 45

Ser Pro Pro Lys Gly Thr Ile Pro Ser Gly Glu Tyr Tyr Arg Pro Ala  
 50 55 60

Pro Ser Ser Ser Gly Asp Ser Leu Arg Arg Glu Ser Gly Ala Leu Leu  
 65 70 75 80

Gln Tyr Leu Pro Ser Leu Ala Ser Pro Cys Ala Asn His Ala Thr Arg  
 85 90 95

Cys Ser Leu Leu Phe Pro Ile Tyr Lys Ile Lys Met Thr Leu Leu Tyr  
 100 105 110

Leu Thr Gly Leu Ala Arg Thr His Cys Cys Cys Leu Ala Asp Arg Cys  
 115 120 125

Ala Glu Ala Val Glu Ser Ala Phe Tyr Leu Val Gly Ser Leu Cys Ile  
 130 135 140

Asn Ala Arg Gly Ala Ala His Leu Thr Asp  
 145 150

<210> 63  
 <211> 484  
 <212> PRT  
 <213> Homo Sapiens

<400> 63

Met Ala Gly Pro Trp Thr Phe Thr Leu Leu Cys Gly Leu Leu Ala Ala  
 1 5 10 15

Thr Leu Ile Gln Ala Thr Leu Ser Pro Thr Ala Val Leu Ile Leu Gly  
 20 25 30

Pro Lys Val Ile Lys Glu Lys Leu Thr Gln Glu Leu Lys Asp His Asn  
 Page 55

35

40

45

Ala Thr Ser Ile Leu Gln Gln Leu Pro Leu Leu Ser Ala Met Arg Glu  
 50 55 60

Lys Pro Ala Gly Gly Ile Pro Val Leu Gly Ser Leu Val Asn Thr Val  
 65 70 75 80

Leu Lys His Ile Ile Trp Leu Lys Val Ile Thr Ala Asn Ile Leu Gln  
 85 90 95

Leu Gln Val Lys Pro Ser Ala Asn Asp Gln Glu Leu Leu Val Lys Ile  
 100 105 110

Pro Leu Asp Met Val Ala Gly Phe Asn Thr Pro Leu Val Lys Thr Ile  
 115 120 125

Val Glu Phe His Met Thr Thr Glu Ala Gln Ala Thr Ile Arg Met Asp  
 130 135 140

Thr Ser Ala Ser Gly Pro Thr Arg Leu Val Leu Ser Asp Cys Ala Thr  
 145 150 155 160

Ser His Gly Ser Leu Arg Ile Gln Leu Leu His Lys Leu Ser Phe Leu  
 165 170 175

Val Asn Ala Leu Ala Lys Gln Val Met Asn Leu Leu Val Pro Ser Leu  
 180 185 190

Pro Asn Leu Val Lys Asn Gln Leu Cys Pro Val Ile Glu Ala Ser Phe  
 195 200 205

Asn Gly Met Tyr Ala Asp Leu Leu Gln Leu Val Lys Val Pro Ile Ser  
 210 215 220

Leu Ser Ile Asp Arg Leu Glu Phe Asp Leu Leu Tyr Pro Ala Ile Lys  
 225 230 235 240

Gly Asp Thr Ile Gln Leu Tyr Leu Gly Ala Lys Leu Leu Asp Ser Gln  
 245 250 255

Gly Lys Val Thr Lys Trp Phe Asn Asn Ser Ala Ala Ser Leu Thr Met  
 260 265 270

Pro Thr Leu Asp Asn Ile Pro Phe Ser Leu Ile Val Ser Gln Asp Val  
 275 280 285



19964US01\_ST25

Val Lys Ala Ala Val Ala Ala Val Leu Ser Pro Glu Glu Phe Met Val  
290 295 300

Leu Leu Asp Ser Val Leu Pro Glu Ser Ala His Arg Leu Lys Ser Ser  
305 310 315 320

Ile Gly Leu Ile Asn Glu Lys Ala Ala Asp Lys Leu Gly Ser Thr Gln  
325 330 335

Ile Val Lys Ile Leu Thr Gln Asp Thr Pro Glu Phe Phe Ile Asp Gln  
340 345 350

Gly His Ala Lys Val Ala Gln Leu Ile Val Leu Glu Val Phe Pro Ser  
355 360 365

Ser Glu Ala Leu Arg Pro Leu Phe Thr Leu Gly Ile Glu Ala Ser Ser  
370 375 380

Glu Ala Gln Phe Tyr Thr Lys Gly Asp Gln Leu Ile Leu Asn Leu Asn  
385 390 395 400

Asn Ile Ser Ser Asp Arg Ile Gln Leu Met Asn Ser Gly Ile Gly Trp  
405 410 415

Phe Gln Pro Asp Val Leu Lys Asn Ile Ile Thr Glu Ile Ile His Ser  
420 425 430

Ile Leu Leu Pro Asn Gln Asn Gly Lys Leu Arg Ser Gly Val Pro Val  
435 440 445

Ser Leu Val Lys Ala Leu Gly Phe Glu Ala Ala Glu Ser Ser Leu Thr  
450 455 460

Lys Asp Ala Leu Val Leu Thr Pro Ala Ser Leu Trp Lys Pro Ser Ser  
465 470 475 480

Pro Val Ser Gln

<210> 64  
<211> 256  
<212> PRT  
<213> Homo Sapiens

<400> 64

Met Phe Gln Thr Gly Gly Leu Ile Val Phe Tyr Gly Leu Leu Ala Gln  
1 5 10 15

19964US01\_ST25

Thr Met Ala Gln Phe Gly Gly Leu Pro Val Pro Leu Asp Gln Thr Leu  
20 25 30

Pro Leu Asn Val Asn Pro Ala Leu Pro Leu Ser Pro Thr Gly Leu Ala  
35 40 45

Gly Ser Leu Thr Asn Ala Leu Ser Asn Gly Leu Leu Ser Gly Gly Leu  
50 55 60

Leu Gly Ile Leu Glu Asn Leu Pro Leu Leu Asp Ile Leu Lys Pro Gly  
65 70 75 80

Gly Gly Thr Ser Gly Gly Leu Leu Gly Gly Leu Leu Gly Lys Val Thr  
85 90 95

Ser Val Ile Pro Gly Leu Asn Asn Ile Ile Asp Ile Lys Val Thr Asp  
100 105 110

Pro Gln Leu Leu Glu Leu Gly Leu Val Gln Ser Pro Asp Gly His Arg  
115 120 125

Leu Tyr Val Thr Ile Pro Leu Gly Ile Lys Leu Gln Val Asn Thr Pro  
130 135 140

Leu Val Gly Ala Ser Leu Leu Arg Leu Ala Val Lys Leu Asp Ile Thr  
145 150 155 160

Ala Glu Ile Leu Ala Val Arg Asp Lys Gln Glu Arg Ile His Leu Val  
165 170 175

Leu Gly Asp Cys Thr His Ser Pro Gly Ser Leu Gln Ile Ser Leu Leu  
180 185 190

Asp Gly Leu Gly Pro Leu Pro Ile Gln Gly Leu Leu Asp Ser Leu Thr  
195 200 205

Gly Ile Leu Asn Lys Val Leu Pro Glu Leu Val Gln Gly Asn Val Cys  
210 215 220

Pro Leu Val Asn Glu Val Leu Arg Gly Leu Asp Ile Thr Leu Val His  
225 230 235 240

Asp Ile Val Asn Met Leu Ile His Gly Leu Gln Phe Val Ile Lys Val  
245 250 255

<210> 65  
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<212> PRT

## 19964US01\_ST25

&lt;213&gt; Homo Sapiens

&lt;400&gt; 65

Met Ser Gln Pro Arg Pro Arg Tyr Val Val Asp Arg Ala Ala Tyr Ser  
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Leu Thr Leu Phe Asp Asp Glu Phe Glu Lys Lys Asp Arg Thr Tyr Pro  
 20 25 30

Val Gly Glu Lys Leu Arg Asn Ala Phe Arg Cys Ser Ser Ala Lys Ile  
 35 40 45

Lys Ala Val Val Phe Gly Leu Leu Pro Val Leu Ser Trp Leu Pro Lys  
 50 55 60

Tyr Lys Ile Lys Asp Tyr Ile Ile Pro Asp Leu Leu Gly Gly Leu Ser  
 65 70 75 80

Gly Gly Ser Ile Gln Val Pro Gln Gly Met Ala Phe Ala Leu Leu Ala  
 85 90 95

Asn Leu Pro Ala Val Asn Gly Leu Tyr Ser Ser Phe Phe Pro Leu Leu  
 100 105 110

Thr Tyr Phe Phe Leu Gly Gly Val His Gln Met Val Pro Gly Thr Phe  
 115 120 125

Ala Val Ile Ser Ile Leu Val Gly Asn Ile Cys Leu Gln Leu Ala Pro  
 130 135 140

Glu Ser Lys Phe Gln Val Phe Asn Asn Ala Thr Asn Glu Ser Tyr Val  
 145 150 155 160

Asp Thr Ala Ala Met Glu Ala Glu Arg Leu His Val Ser Ala Thr Leu  
 165 170 175

Ala Cys Leu Thr Ala Ile Ile Gln Met Gly Leu Gly Phe Met Gln Phe  
 180 185 190

Gly Phe Val Ala Ile Tyr Leu Ser Glu Ser Phe Ile Arg Gly Phe Met  
 195 200 205

Thr Ala Ala Gly Leu Gln Ile Leu Ile Ser Val Leu Lys Tyr Ile Phe  
 210 215 220

Gly Leu Thr Ile Pro Ser Tyr Thr Gly Pro Gly Ser Ile Val Phe Thr  
 225 230 235 240

19964US01\_ST25

Phe Ile Asp Ile Cys Lys Asn Leu Pro His Thr Asn Ile Ala Ser Leu  
 245 250 255  
 Ile Phe Ala Leu Ile Ser Gly Ala Phe Leu Val Leu Val Lys Glu Leu  
 260 265 270  
 Asn Ala Arg Tyr Met His Lys Ile Arg Phe Pro Ile Pro Thr Glu Met  
 275 280 285  
 Ile Val Val Val Val Ala Thr Ala Ile Ser Gly Gly Cys Lys Met Pro  
 290 295 300  
 Lys Lys Tyr His Met Gln Ile Val Gly Glu Ile Gln Arg Gly Phe Pro  
 305 310 315 320  
 Thr Pro Val Ser Pro Val Val Ser Gln Trp Lys Asp Met Ile Gly Thr  
 325 330 335  
 Ala Phe Ser Leu Ala Ile Val Ser Tyr Val Ile Asn Leu Ala Met Gly  
 340 345 350  
 Arg Thr Leu Ala Asn Lys His Gly Tyr Asp Val Asp Ser Asn Gln Glu  
 355 360 365  
 Met Ile Ala Leu Gly Cys Ser Asn Phe Phe Gly Ser Phe Phe Lys Ile  
 370 375 380  
 His Val Ile Cys Cys Ala Leu Ser Val Thr Leu Ala Val Asp Gly Ala  
 385 390 395 400  
 Gly Gly Lys Ser Gln Val Ala Ser Leu Cys Val Ser Leu Val Val Met  
 405 410 415  
 Ile Thr Met Leu Val Leu Gly Ile Tyr Leu Tyr Pro Leu Pro Lys Ser  
 420 425 430  
 Val Leu Gly Ala Leu Ile Ala Val Asn Leu Lys Asn Ser Leu Lys Gln  
 435 440 445  
 Leu Thr Asp Pro Tyr Tyr Leu Trp Arg Lys Ser Lys Leu Asp Cys Cys  
 450 455 460  
 Ile Trp Val Val Ser Phe Leu Ser Ser Phe Phe Leu Ser Leu Pro Tyr  
 465 470 475 480  
 Gly Val Ala Val Gly Val Ala Phe Ser Val Leu Val Val Val Phe Gln  
 485 490 495

19964US01\_ST25

Thr Gln Phe Arg Asn Gly Tyr Ala Leu Ala Gln Val Met Asp Thr Asp  
500 505 510

Ile Tyr Val Asn Pro Lys Thr Tyr Asn Arg Ala Gln Asp Ile Gln Gly  
515 520 525

Ile Lys Ile Ile Thr Tyr Cys Ser Pro Leu Tyr Phe Ala Asn Ser Glu  
530 535 540

Ile Phe Arg Gln Lys Val Ile Ala Lys Thr Gly Met Asp Pro Gln Lys  
545 550 555 560

Val Leu Leu Ala Lys Gln Lys Tyr Leu Lys Lys Gln Glu Lys Arg Arg  
565 570 575

Met Arg Pro Thr Gln Gln Arg Arg Ser Leu Phe Met Lys Thr Lys Thr  
580 585 590

Val Ser Leu Gln Glu Leu Gln Gln Asp Phe Glu Asn Ala Pro Pro Thr  
595 600 605

Asp Pro Asn Asn Asn Gln Thr Pro Ala Asn Gly Thr Ser Val Ser Tyr  
610 615 620

Ile Thr Phe Ser Pro Asp Ser Ser Ser Pro Ala Gln Ser Glu Pro Pro  
625 630 635 640

Ala Ser Ala Glu Ala Pro Gly Glu Pro Ser Asp Met Leu Ala Ser Val  
645 650 655

Pro Pro Phe Val Thr Phe His Thr Leu Ile Leu Asp Met Ser Gly Val  
660 665 670

Ser Phe Val Asp Leu Met Gly Ile Lys Ala Leu Ala Lys Leu Ser Ser  
675 680 685

Thr Tyr Gly Lys Ile Gly Val Lys Val Phe Leu Val Asn Ile His Ala  
690 695 700

Gln Val Tyr Asn Asp Ile Ser His Gly Gly Val Phe Glu Asp Gly Ser  
705 710 715 720

Leu Glu Cys Lys His Val Phe Pro Ser Ile His Asp Ala Val Leu Phe  
725 730 735

Ala Gln Ala Asn Ala Arg Asp Val Thr Pro Gly His Asn Phe Gln Gly

740

745

750

Ala Pro Gly Asp Ala Glu Leu Ser Leu Tyr Asp Ser Glu Glu Asp Ile  
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<400> 66

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 20 25 30

Asp Asp Lys Ala Gly Ala Thr Leu Leu Phe Ser Gly Ile Phe Leu Gly  
 35 40 45

Leu Val Gly Ile Thr Phe Thr Val Met Gly Trp Ile Lys Tyr Gln Gly  
 50 55 60

Val Ser His Phe Glu Trp Thr Gln Leu Leu Gly Pro Val Leu Leu Ser  
 65 70 75 80

Val Gly Val Thr Phe Ile Leu Ile Ala Val Cys Lys Phe Lys Met Leu  
 85 90 95

Ser Cys Gln Leu Cys Lys Glu Ser Glu Glu Arg Val Pro Asp Ser Glu  
 100 105 110

Gln Thr Pro Gly Gly Pro Ser Phe Val Phe Thr Gly Ile Asn Gln Pro  
 115 120 125

Ile Thr Phe His Gly Ala Thr Val Val Gln Tyr Ile Pro Pro Pro Tyr  
 130 135 140

Gly Ser Pro Glu Pro Met Gly Ile Asn Thr Ser Tyr Leu Gln Ser Val  
 145 150 155 160

Val Ser Pro Cys Gly Leu Ile Thr Ser Gly Gly Ala Ala Ala Ala Met  
 Page 62

Ser Ser Pro Pro Gln Tyr Tyr Thr Ile Tyr Pro Gln Asp Asn Ser Ala  
180 185 190

Phe Val Val Asp Glu Gly Cys Leu Ser Phe Thr Asp Gly Gly Asn His  
195 200 205

Arg Pro Asn Pro Asp Val Asp Gln Leu Glu Glu Thr Gln Leu Glu Glu  
210 215 220

Glu Ala Cys Ala Cys Phe Ser Pro Pro Pro Tyr Glu Glu Ile Tyr Ser  
225 230 235 240

Leu Pro Arg

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21

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21

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21

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tttctctgct tgatgcactt g 21

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<210> 79  
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19964US01\_ST25

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<210> 82  
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 ccttggtggg ggaggacgca gcattctcct gtttcctgtc tcctaagacc aatgcagagg 300  
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 gcctctatgg gtgcaggatt agttcccagt cttactacca gaaggccatc tgggagctac 540  
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19964US01\_ST25

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atgtggagat ctctctgacc gtccaagaga acgccgggag catatcctgt tccatgcggc	780
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gcattgttgg actgaagatt ttcttctcca aattccagtg taagcgagag agagaagcat	960
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gcggaactgg actggagaag aaagcacgga caggcagaat tgagagacgc ccggaacac	1140
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acattcttct ttagggatat taaggctctc ctcccagatc caaagtcccg cagcagccgg	1860
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ggctaagtga tcttgaaata ccacctctca ggtgaagaac cgtcaggaat tcccatctca	2040
caggctgtgg ttagattaa gtagacaagg aatgtgaata atgcttagat cttattgatg	2100
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aaaaa	2165

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## 19964US01\_ST25

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 Gly Glu Asp Ala Ala Phe Ser Cys Phe Leu Ser Pro Lys Thr Asn Ala  
 35 40 45  
 Glu Ala Met Glu Val Arg Phe Phe Arg Gly Gln Phe Ser Ser Val Val  
 50 55 60  
 His Leu Tyr Arg Asp Gly Lys Asp Gln Pro Phe Met Gln Met Pro Gln  
 65 70 75 80  
 Tyr Gln Gly Arg Thr Lys Leu Val Lys Asp Ser Ile Ala Glu Gly Arg  
 85 90 95  
 Ile Ser Leu Arg Leu Glu Asn Ile Thr Val Leu Asp Ala Gly Leu Tyr  
 100 105 110  
 Gly Cys Arg Ile Ser Ser Gln Ser Tyr Tyr Gln Lys Ala Ile Trp Glu  
 115 120 125  
 Leu Gln Val Ser Ala Leu Gly Ser Val Pro Leu Ile Ser Ile Thr Gly  
 130 135 140  
 Tyr Val Asp Arg Asp Ile Gln Leu Leu Cys Gln Ser Ser Gly Trp Phe  
 145 150 155 160  
 Pro Arg Pro Thr Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser  
 165 170 175  
 Thr Asp Ser Arg Thr Asn Arg Asp Met His Gly Leu Phe Asp Val Glu  
 180 185 190  
 Ile Ser Leu Thr Val Gln Glu Asn Ala Gly Ser Ile Ser Cys Ser Met  
 195 200 205  
 Arg His Ala His Leu Ser Arg Glu Val Glu Ser Arg Val Gln Ile Gly  
 210 215 220  
 Asp Thr Phe Phe Glu Pro Ile Ser Trp His Leu Ala Thr Lys Val Leu  
 225 230 235 240  
 Gly Ile Leu Cys Cys Gly Leu Phe Phe Gly Ile Val Gly Leu Lys Ile  
 245 250 255

19964US01\_ST25

Phe Phe Ser Lys Phe Gln Cys Lys Arg Glu Arg Glu Ala Trp Ala Gly  
260 265 270

Ala Leu Phe Met Val Pro Ala Gly Thr Gly Ser Glu Met Leu Pro His  
275 280 285

Pro Ala Ala Ser Leu Leu Leu Val Leu Ala Ser Arg Gly Pro Gly Pro  
290 295 300

Lys Lys Glu Asn Pro Gly Gly Thr Gly Leu Glu Lys Lys Ala Arg Thr  
305 310 315 320

Gly Arg Ile Glu Arg Arg Pro Glu Thr Arg Ser Gly Gly Asp Ser Gly  
325 330 335

Ser Arg Asp Gly Ser Pro Glu Ala Leu Arg Phe  
340 345

<210> 86  
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 1 5 10 15

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 <212> PRT  
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Val Ala Pro Arg Ala Lys Ala His Lys Ser Gln Asp Ser Leu Cys  
 1 5 10 15

<210> 93  
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 <212> PRT  
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<400> 93

Cys Phe Arg Ser Thr Arg His Asn Phe Asn Ser Met Arg  
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<210> 94  
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<400> 94

Met Asn Gly Thr Tyr Asn Thr Cys Gly Ser Ser Asp Leu Thr Trp Pro  
 1 5 10 15

Pro Ala Ile Lys Leu Gly  
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<210> 95  
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Arg Asp Thr Ser Asp Thr Pro Leu Cys Gln Leu Ser Gln Gly  
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<210> 96  
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<400> 96

Gly Ile Gln Glu Gly Gly Phe Cys Phe Arg Ser Thr Arg His Asn Phe  
1 5 10 15

Asn Ser Met Arg Phe Pro  
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22

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 1 5 10 15

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Val Ser Leu Lys Ile Asp Asp Asp Lys Arg Arg Asp Thr Ile Gln Arg  
 35 40 45

Leu Arg Gln Cys Lys Tyr Asp Lys Lys Arg Val Ile Leu Lys Asp Leu  
 50 55 60

Lys His Asn Asp Gly Asn Phe Thr Glu Lys Gln Lys Ile Glu Leu Asn  
 65 70 75 80

Lys Leu Leu Gln Ile Asp Tyr Tyr Asn Leu Thr Lys Phe Tyr Gly Thr  
 85 90 95

Val Lys Leu Asp Thr Met Ile Phe Gly Val Ile Glu Tyr Cys Glu Arg  
 100 105 110



19964US01\_ST25

Gly Ser Leu Arg Glu Val Leu Asn Asp Thr Ile Ser Tyr Pro Asp Gly  
115 120 125

Thr Phe Met Asp Trp Glu Phe Lys Ile Ser Val Leu Tyr Asp Ile Ala  
130 135 140

Lys Gly Met Ser Tyr Leu His Ser Ser Lys Thr Glu Val His Gly Arg  
145 150 155 160

Leu Lys Ser Thr Asn Cys Val Val Asp Ser Arg Met Val Val Lys Ile  
165 170 175

Thr Asp Phe Gly Cys Asn Ser Ile Leu Pro Pro Lys Lys Asp Leu Trp  
180 185 190

Thr Ala Pro Glu His Leu Arg Gln Ala Asn Ile Ser Gln Lys Gly Asp  
195 200 205

Val Tyr Ser Tyr Gly Ile Ile Ala Gln Glu Ile Ile Leu Arg Lys Glu  
210 215 220

Thr Phe Tyr Thr Leu Ser Cys Arg Asp Arg Asn Glu Lys Ile Phe Arg  
225 230 235 240

Val Glu Asn Ser Asn Gly Met Lys Pro Phe Arg Pro Asp Leu Phe Leu  
245 250 255

Glu Thr Ala Glu Glu Lys Glu Leu Glu Val Tyr Leu Leu Val Lys Asn  
260 265 270

Cys Trp Glu Glu Asp Pro Glu Lys Arg Pro Asp Phe Lys Lys Ile Glu  
275 280 285

Thr Thr Leu Ala Lys Ile Phe Gly Leu Phe His Asp Gln Lys Asn Glu  
290 295 300

Ser Tyr Met Asp Thr Leu Ile Arg Arg Leu Gln Leu Tyr Ser Arg Asn  
305 310 315 320

Leu Glu His Leu Val Glu Glu Arg Thr Gln Leu Tyr Lys Ala Glu Arg  
325 330 335

Asp Arg Ala Asp Arg Leu Asn Phe Met Leu Leu Pro Arg Leu Val Val  
340 345 350

Lys Ser Leu Lys Glu Lys Gly Phe Val Glu Pro Glu Leu Tyr Glu Glu

355

360

365

Val Thr Ile Tyr Phe Ser Asp Ile Val Gly Phe Thr Thr Ile Cys Lys  
 370 375 380

Tyr Ser Thr Pro Met Glu Val Val Asp Met Leu Asn Asp Ile Tyr Lys  
 385 390 395 400

Ser Phe Asp His Ile Val Asp His His Asp Val Tyr Lys Val Glu Thr  
 405 410 415

Ile Gly Asp Ala Tyr Met Val Ala Ser Gly Leu Pro Lys Arg Asn Gly  
 420 425 430

Asn Arg His Ala Ile Asp Ile Ala Lys Met Ala Leu Glu Ile Leu Ser  
 435 440 445

Phe Met Gly Thr Phe Glu Leu Glu His Leu Pro Gly Leu Pro Ile Trp  
 450 455 460

Ile Arg Ile Gly Val His Ser Gly Pro Cys Ala Ala Gly Val Val Gly  
 465 470 475 480

Ile Lys Met Pro Arg Tyr Cys Leu Phe Gly Asp Thr Val Asn Thr Ala  
 485 490 495

Ser Arg Met Glu Ser Thr Gly Leu Pro Leu Arg Ile His Val Ser Gly  
 500 505 510

Ser Thr Ile Ala Ile Leu Lys Arg Thr Glu Cys Gln Phe Leu Tyr Glu  
 515 520 525

Val Arg Gly Glu Thr Tyr Leu Lys Gly Arg Gly Asn Glu Thr Thr Tyr  
 530 535 540

Trp Leu Thr Gly Met Lys Asp Gln Lys Phe Asn Leu Pro Thr Pro Pro  
 545 550 555 560

Thr Val Glu Asn Gln Gln Arg Leu Gln Ala Glu Phe Ser Asp Met Ile  
 565 570 575

Ala Asn Ser Leu Gln Lys Arg Gln Ala Ala Gly Ile Arg Ser Gln Lys  
 580 585 590

Pro Arg Arg Val Ala Ser Tyr Lys Lys Gly Thr Leu Glu Tyr Leu Gln  
 595 600 605

19964US01\_ST25  
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 <212> PRT  
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<400> 106

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 1 5 10 15

<210> 107  
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<400> 109  
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19964US01\_ST25

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Leu Gln Ala Val Arg  
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<210> 113

<211> 14

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<213> Homo Sapiens

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<210> 114

<211> 12

<212> PRT

<213> Homo Sapiens

<400> 114

Asp Met Trp Ser Thr Gln Asp Leu Tyr Asp Asn Pro  
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<210> 115

<211> 12

<212> PRT

<213> Homo Sapiens

<400> 115

Cys Arg Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala  
1 5 10

<210> 116

<211> 13

<212> PRT

<213> Homo Sapiens

<400> 116

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly  
1 5 10

<210> 117

19964US01\_ST25

<211> 816  
<212> DNA  
<213> Homo Sapiens

<400> 117  
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ctggccgggt gcatcgcggc caccgggatg gacatgtgga gcacccagga cctgtacgac 120  
aaccccgatc cctccgtgtt ccagtacgaa gggctctgga ggagctgcgt gaggcagagt 180  
tcaggcttca ccgaatgcag gccctatttc accatcctgg gacttccagc catgctgcag 240  
gcagtgcgag ccctgatgat cgtaggcacg gtcctgggtg ccattggcct cctggatatcc 300  
atctttgccc tgaaatgcat ccgcattggc agcatggagg actctgcaa agccaacatg 360  
aactgacct ccgggatcat gttcattgtc tcaggctctt gtgcaattgc tggagtgtct 420  
gtgtttgcca acatgctggt gactaacttc tggatgtcca cagctaacat gtacaccggc 480  
atgggtggga tgggtgcagac tgttcagacc aggtacacat ttggtgcggc tctgttcgtg 540  
ggctgggtcg ctggaggcct cacactaatt ggggtgtga tgatgtgcat cgcctgccgg 600  
ggcctggcac cagaagaaac caactacaaa gccgtttctt atcatgcctc aggccacagt 660  
gttgctaca agcctggagg cttcaaggcc agcactggct ttgggtccaa caccaaaaac 720  
aagaagatat acgatggagg tgcccgcaca gaggacgagg tacaatctta tccttccaag 780  
cacgactatg tgtaatgctc taagacctct cagcac 816

<210> 118  
<211> 261  
<212> PRT  
<213> Homo Sapiens

<400> 118  
Met Ser Thr Thr Thr Cys Gln Val Val Ala Phe Leu Leu Ser Ile Leu  
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Gly Leu Ala Gly Cys Ile Ala Ala Thr Gly Met Asp Met Trp Ser Thr  
20 25 30  
Gln Asp Leu Tyr Asp Asn Pro Val Thr Ser Val Phe Gln Tyr Glu Gly  
35 40 45  
Leu Trp Arg Ser Cys Val Arg Gln Ser Ser Gly Phe Thr Glu Cys Arg  
50 55 60  
Pro Tyr Phe Thr Ile Leu Gly Leu Pro Ala Met Leu Gln Ala Val Arg  
65 70 75 80  
Ala Leu Met Ile Val Gly Ile Val Leu Gly Ala Ile Gly Leu Leu Val  
85 90 95

19964US01\_ST25

Ser Ile Phe Ala Leu Lys Cys Ile Arg Ile Gly Ser Met Glu Asp Ser  
100 105 110

Ala Lys Ala Asn Met Thr Leu Thr Ser Gly Ile Met Phe Ile Val Ser  
115 120 125

Gly Leu Cys Ala Ile Ala Gly Val Ser Val Phe Ala Asn Met Leu Val  
130 135 140

Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr Gly Met Gly Gly  
145 150 155 160

Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly Ala Ala Leu Phe  
165 170 175

Val Gly Trp Val Ala Gly Gly Leu Thr Leu Ile Gly Gly Val Met Met  
180 185 190

Cys Ile Ala Cys Arg Gly Leu Ala Pro Glu Glu Thr Asn Tyr Lys Ala  
195 200 205

Val Ser Tyr His Ala Ser Gly His Ser Val Ala Tyr Lys Pro Gly Gly  
210 215 220

Phe Lys Ala Ser Thr Gly Phe Gly Ser Asn Thr Lys Asn Lys Lys Ile  
225 230 235 240

Tyr Asp Gly Gly Ala Arg Thr Glu Asp Glu Val Gln Ser Tyr Pro Ser  
245 250 255

Lys His Asp Tyr Val  
260

<210> 119  
<211> 227  
<212> DNA  
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aacccgtca cctccgtgtt ccagtacgaa gggctctgga ggagctgcgt gaggcagagt 180  
tcaggcttca ccgaatgcag gccctatttc accatcctgg gacttcc 227

<210> 120  
<211> 69

19964US01\_ST25

<212> PRT  
<213> Homo Sapiens

<400> 120

Met Ser Thr Thr Thr Cys Gln Val Val Ala Phe Leu Leu Ser Ile Leu  
1 5 10 15

Gly Leu Ala Gly Cys Ile Ala Ala Thr Gly Met Asp Met Trp Ser Thr  
20 25 30

Gln Asp Leu Tyr Asp Asn Pro Val Thr Ser Val Phe Gln Tyr Glu Gly  
35 40 45

Leu Trp Arg Ser Cys Val Arg Gln Ser Ser Gly Phe Thr Glu Cys Arg  
50 55 60

Pro Tyr Phe Thr Ile  
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<210> 121  
<211> 20  
<212> DNA  
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<220>  
<223> Oligonucleotide

<400> 121  
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20

<210> 122  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide

<400> 122  
atggtagaag agtaggcaat

20

<210> 123  
<211> 15  
<212> PRT  
<213> Homo Sapiens

<400> 123

Glu Lys Trp Asn Leu His Lys Arg Ile Ala Leu Lys Met Val Cys  
1 5 10 15

<210> 124  
<211> 11  
<212> PRT



<213> Homo Sapiens

<400> 124

Cys Leu Gly Phe Asn Phe Lys Glu Met Phe Lys  
1 5 10

<210> 125

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 125

taatgatgaa ccctacactg agc

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<210> 126

<211> 20

<212> DNA

<213> Artificial Sequence

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<223> Oligonucleotide

<400> 126

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20

<210> 127

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 127

agtgctggaa ggatgtgcgt gt

22

<210> 128

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 128

ttgaggtggt tgttggttt

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<210> 129

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Oligonucleotide

<400> 129  
agatgtgctg aggctgtaga 20

<210> 130  
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<220>  
<223> Oligonucleotide

<400> 130  
atgaaggttg attatttgag 20

<210> 131  
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<400> 131  
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<210> 132  
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<400> 132  
gcagcagccc aaacaccaca 20

<210> 133  
<211> 20  
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<223> Oligonucleotide

<400> 133  
ctgagccgag aggtggaatc 20

<210> 134  
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<220>  
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<400> 134  
ctctctcgct tacactggaa 20

19964US01\_ST25

<210> 135  
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Gln Trp Gln Val Phe Gly Pro Asp Lys Pro Val Gln Ala Leu  
 1 5 10

<210> 136  
 <211> 15  
 <212> PRT  
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 <400> 136

Ala Lys Trp Lys Gly Pro Gln Gly Gln Asp Leu Ser Thr Asp Ser  
 1 5 10 15

<210> 137  
 <211> 32  
 <212> PRT  
 <213> Homo Sapiens  
 <400> 137

Asn Met Leu Val Thr Asn Phe Trp Met Ser Thr Ala Asn Met Tyr Thr  
 1 5 10 15

Gly Met Gly Gly Met Val Gln Thr Val Gln Thr Arg Tyr Thr Phe Gly  
 20 25 30

<210> 138  
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<220>  
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<400> 138  
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23

<210> 139  
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 <212> DNA  
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<220>  
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23

19964US01\_ST25

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<211> 20  
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ccatgaaagc tccatgtcta

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<211> 20  
<212> DNA  
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<400> 141  
ggcaaagtgc agagacgtga

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